

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently amended) A water/air contact medium for use in an evaporative cooler, comprising:

a corrugated fibrous sheet material comprising at least a top layer and a bottom layer in contact at one or more regions to form at least two channels between the top layer and the bottom layer for air and fluid flow; and

a water insoluble thermoplastic compound that impregnates the corrugated fibrous sheet material, wherein the water insoluble thermoplastic compound consisting essentially of one or more water insoluble cationic polymers made of polyamideimide and polystyrene monomers with one or more cationic groups pendent to [[the]] one or more water insoluble amorphous cationic polymers to give an overall positive charge to inhibit deposition of one or more dissolved or particulate contaminants, wherein the water insoluble thermoplastic compound also has a surface tension between about 20 and 70 dynes/cm and an interfacial tension with in-service water between zero and about 30 dynes/cm.

- 2.-3. (Cancelled).

4. (Currently amended) The contact medium as recited in claim 1, wherein the water insoluble thermoplastic compound has:

a nonpolar solubility parameter δ_n within the range of about 6.5 to about 8.5 g-cal/mole[.]; and

a polar solubility parameter δ_p within the range of about 2.5 to about 7.5 g-cal/mole, and a hydrogen bond solubility parameter δ_h , within the range of about 0.7 to about 5.0 g cal/mole.

5. (Currently amended) The contact medium as recited in claim 1, wherein the water insoluble thermoplastic compound has;

a nonpolar solubility parameter δ_n within the range of about 6.5 to about 8.5 g-cal/mole $^{1/2}$; and

a polar solubility parameter δ_p within the range of about 3.0 to about 5.5 g-cal/mole, and a hydrogen bond solubility parameter δ_h , within the range of about 1.0 to about 4.0 g cal/mole.

6. (Previously presented) The contact medium as recited in claim 1, wherein the water insoluble thermoplastic compound has a surface tension between about 30 and about 68 dynes/cm, and an interfacial tension with in-service water between zero and about 23 dynes/cm.

7. (Previously presented) The contact medium as recited in claim 4, wherein the water insoluble thermoplastic compound has a surface tension between about 30 and about 68 dynes/cm, and an interfacial tension with in-service water between zero and about 23 dynes/cm.

8. (Previously presented) The contact medium as recited in claim 5, wherein the water insoluble thermoplastic compound has a surface tension between about 30 and about 68 dynes/cm, and an interfacial tension with in-service water between zero and about 23 dynes/cm.

9. (Previously presented) The contact medium as recited in claim 1, wherein the water insoluble thermoplastic compound has a surface tension between about 40 and about 68 dynes/cm, and an interfacial tension with in-service water between zero and about 15 dynes/cm.

10. (Previously presented) The contact medium as recited in claim 4, wherein the water insoluble thermoplastic compound has a surface tension between about 40 and about 68 dynes/cm, and an interfacial tension with in-service water between zero and about 15 dynes/cm.

11. (Previously presented) The contact medium as recited in claim 5, wherein the water insoluble thermoplastic compound has a surface tension between about 40 and about 68 dynes/cm, and an interfacial tension with in-service water between zero and about 15 dynes/cm.

12. (Currently amended) The contact medium as recited in claim 1, further comprising a discontinuous phase dispersed in [[the]] a continuous phase.

13. (Previously presented) The contact medium as recited in claim 12, wherein the discontinuous phase further comprises fillers, pigments or extenders or combinations thereof.

14. (Previously presented) The contact medium as recited in claim 13, wherein the water insoluble thermoplastic compound and the discontinuous phase together make up between three and about sixty percent of the total weight of the contact media when dry.

15. (Previously presented) The contact medium as recited in claim 13, wherein the water insoluble thermoplastic compound and the discontinuous phase together make up between five and about twenty-five percent of the total weight of the contact media when dry.

16. (Previously presented) The contact medium as recited in claim 13, wherein the water insoluble thermoplastic compound and the discontinuous phase together make up between about ten and about fifteen percent of the total weight of the contact media when dry.

17.-24. (Cancelled).

25. (Withdrawn) A water/air contact medium for use in an evaporative cooler, comprising:

- a) a fibrous material;
- b) an cationic impregnation water insoluble layer comprising a cationic continuous phase deposited on the fibrous material medium; and
- c) one or more cationic thermoplastic polymers dispersed in the cationic continuous phase for inhibiting deposition of one or more dissolved or particulate contaminants onto the, wherein the one or more cationic thermoplastic polymers is selected from the group consisting of polyacetals, polyacrylates, polyacrylics, polyacrylamides, polyalkylamides, polyamides, polyamideimides, polycarbonates, polycarboxylicdihydric esters, polyimides, polyesters, polycellulose acetate butyrates, polydiglycidyletheralkyl/aryldiols, polysilicones, polysiloxanes, polysiloxides, polystyrenes, polysucrose acetate butyrates, polysulfonamides, polysulfones, polyurethanes, polyvinylacetals, and polyvinylhalogens.

26. (Withdrawn) The contact medium as recited in claim 1, wherein the one or more amorphous cationic polymers of the cationic continuous phase is selected from the group consisting of polyacetals, polyacrylates, polyacrylics, polyacrylamides, polyalkylamides, polyamides, polyamideimides, polycarbonates, polycarboxylicdihydric esters, polyimides, polyesters, polycellulose acetate butyrates, polydiglycidyletheralkyl/aryldiols, polysilicones, polysiloxanes, polysiloxides, polystyrenes, polysucrose acetate butyrates, polysulfonamides, polysulfones, polyurethanes, and polyvinylacetals.

27. (Cancelled).

28. (Withdrawn) The contact medium as recited in claim 25, wherein the one or more thermoplastic cationic polymers of the non-chlorinated continuous phase is selected from the group consisting of polyacetals, polyacrylates, polyacrylics, polyacrylamides, polyalkylamides, polyamides, polyamideimides, polycarbonates, polycarboxylicdihydric esters, polyimides, polyesters, polycellulose acetate butyrates, polydiglycidyletheralkyl/aryldiols, polysilicones, polysiloxanes, polysiloxides, polystyrenes, polysucrose acetate butyrates, polysulfonamides, polysulfones, polyurethanes, and polyvinylacetals.

29.-32. (Cancelled).

33. (withdrawn) A water/air contact medium for use in an evaporative cooler, comprising;

a fibrous material; and

a water insoluble thermoplastic compound with a molecular weight of at least 2500 g/mole that impregnates the fibrous material, wherein the water insoluble thermoplastic compound consisting essentially of;

40 weight percent polyvinyl chloride; and

60 weight percent polymethacrylate to inhibit deposition of one or more dissolved or particulate contaminants wherein the water insoluble thermoplastic compound has a nonpolar solubility parameter δ_n of about 7.47 g-cal/mole, a polar solubility parameter δ_p of about 5.21 g-cal/mole, and a hydrogen bond solubility parameter δ_h , of about 3.11 g-cal/mole.

34. (previously presented) A water/air contact medium for use in an evaporative cooler, comprising:

a corrugated fibrous sheet material comprising at least a top layer and a bottom layer in contact at one or more regions to form at least two channels between the top layer and the bottom layer for air and fluid flow; and

a water insoluble thermoplastic compound that impregnates the corrugated fibrous sheet material, wherein the water insoluble thermoplastic compound with a molecular weight of at least 2500 g/mole consisting essentially of:

70 weight percent Polyamideimide; and

30 weight percent Polystyrene to inhibit deposition of one or more dissolved or particulate contaminants.

35. (Withdrawn) A water/air contact medium for use in an evaporative cooler, comprising

a fibrous material; and

a water insoluble thermoplastic compound that impregnates the fibrous material, wherein the water insoluble thermoplastic compound has a molecular weight of at least 2500 g/mole consisting essentially of 40 weight percent Polystyrene, 40 weight percent Polybutadiene and 20 weight percent Polyacrylonitrile to inhibit deposition of one or more dissolved or particulate contaminants wherein the water insoluble thermoplastic compound has a nonpolar solubility parameter δ_n of about 7.16 g-cal/mole, a polar solubility parameter δ_p of about 4.37 g-cal/mole, and a hydrogen bond solubility parameter δ_h , of about 3.60 g-cal/mole.

36. (Withdrawn) A water/air contact medium for use in an evaporative cooler, comprising

a fibrous material; and

a water insoluble thermoplastic compound that impregnates the fibrous material, wherein the water insoluble thermoplastic compound has a molecular weight of at least 2500 g/mole consisting essentially of

Polyamideimide to inhibit deposition of one or more dissolved or particulate contaminants wherein the water insoluble thermoplastic compound has a nonpolar solubility parameter δ_n of about 7.84 g-cal/mole, a polar solubility parameter δ_p of about 7.11 g-cal/mole, and a hydrogen bond solubility parameter δ_h of about 6.43 g-cal/mole.

37. (Withdrawn) A water/air contact medium for use in an evaporative cooler, comprising

a fibrous material; and

a water insoluble thermoplastic compound that impregnates the fibrous material, wherein the water insoluble thermoplastic compound has a molecular weight of at least 2500 g/mole consisting essentially of Polybutylacrylate to inhibit deposition of one or more dissolved or particulate contaminants wherein the water insoluble thermoplastic compound has a nonpolar solubility parameter δ_n of about 7.90 g-cal/mole, a polar solubility parameter δ_p of about 4.28 g-cal/mole, and a hydrogen bond solubility parameter δ_h of about 3.54 g-cal/mole.

38. (Currently amended) A water/air contact medium for use in an evaporative cooler, comprising:

a corrugated fibrous sheet material comprising at least a top layer and a bottom layer in contact at one or more regions to form at least two channels between the top layer and the bottom layer for air and fluid flow; and

a water insoluble thermoplastic compound ~~[[has]]~~ having a molecular weight of at least 2500 g/mole that impregnates the corrugated fibrous sheet material, wherein the water insoluble thermoplastic compound comprises:

about 5-15 weight percent Polyvinyl chloride,

about 2-8 weight percent Polyacrylonitrile,

about 5-15 weight percent Polymethacrylate,

about 5-15 weight percent Polyamideimide,

about 5-15 weight percent Polybutylacrylate,

about 20-30 weight percent Polystyrene, and

about 25-35 weight percent Polybutadiene,

to inhibit deposition of one or more dissolved or particulate contaminants.

39. (Withdrawn) A water/air contact medium for use in an evaporative cooler, comprising

a fibrous material; and

a water insoluble thermoplastic compound that impregnates the fibrous material, wherein the water insoluble thermoplastic compound comprise

10 weight percent Polyvinyl chloride,

5 weight percent Polyacrylonitrile,

10 weight percent Polymethacrylate,

10 weight percent Polyamideimide,

10 weight percent Polybutylacrylate,

25 weight percent Polystyrene, and

30 weight percent Polybutadiene,

to inhibit deposition of one or more dissolved or particulate contaminants wherein the water insoluble thermoplastic compound has a

nonpolar solubility parameter δ_n of about 7.36 g-cal/mole,

a polar solubility parameter δ_p of about 4.47 g-cal/mole, and

a hydrogen bond solubility parameter δ_h , of about 3.55 g-cal/mole.

40. (Withdrawn) A water/air contact medium for use in an evaporative cooler, comprising

a fibrous material; and

a water insoluble thermoplastic compound that impregnates the fibrous material, wherein the water insoluble thermoplastic compound comprise

7 weight percent Polyacrylonitrile,

13 weight percent Polymethacrylate,

8 weight percent Polyamideimide,

18 weight percent Polybutylacrylate,

32 weight percent Polystyrene, and

22 weight percent Polybutadiene,

to inhibit deposition of one or more dissolved or particulate contaminants wherein the water insoluble thermoplastic compound has a

nonpolar solubility parameter δ_n of about 7.50 g-cal/mole,

a polar solubility parameter δ_p of about 4.48 g-cal/mole, and

a hydrogen bond solubility parameter δ_h , of about 3.49 g-cal/mole.

41. (Withdrawn) A water/air contact medium for use in an evaporative cooler, comprising

a fibrous material; and

a water insoluble thermoplastic compound that impregnates the fibrous material, wherein the water insoluble thermoplastic compound comprise

3 weight percent Polyacrylonitrile,

4 weight percent Polymethacrylate,

3 weight percent Polyamideimide,

8 weight percent Polybutylacrylate,

55 weight percent Polystyrene, and

27 weight percent Polybutadiene,

to inhibit deposition of one or more dissolved or particulate contaminants wherein the water insoluble thermoplastic compound has a

nonpolar solubility parameter δ_n of about 7.58 g-cal/mole,

a polar solubility parameter δ_p of about 4.00 g-cal/mole, and

a hydrogen bond solubility parameter δ_h , of about 3.00 g-cal/mole.

42. (Withdrawn) A water/air contact medium for use in an evaporative cooler, comprising

a fibrous material; and

a water insoluble thermoplastic compound that impregnates the fibrous material, wherein the water insoluble thermoplastic compound comprise

80 weight percent Copolybutylacrylate-amideimide,

20 weight percent Copolystyrene-butadiene,

to inhibit deposition of one or more dissolved or particulate contaminants wherein the water insoluble thermoplastic compound has a

nonpolar solubility parameter δ_n of about 7.58 g-cal/mole,

a polar solubility parameter δ_p of about 5.48 g-cal/mole, and

a hydrogen bond solubility parameter δ_h , of about 3.91 g-cal/mole.

43. (Withdrawn) A water/air contact medium for use in an evaporative cooler, comprising

a fibrous material; and

a water insoluble thermoplastic compound that impregnates the fibrous material, wherein the water insoluble thermoplastic compound comprise

2 weight percent Copolymethacrylate-acrylonitrile,

81 weight percent Copolybutylacrylate-amideimide,

17 weight percent Copolystyrene-butadiene,

to inhibit deposition of one or more dissolved or particulate contaminants wherein the water insoluble thermoplastic compound has a

nonpolar solubility parameter δ_n of about 7.55 g-cal/mole,

a polar solubility parameter δ_p of about 5.50 g-cal/mole, and

a hydrogen bond solubility parameter δ_h , of about 3.89 g-cal/mole.

44. (New) A water/air contact medium for use in an evaporative cooler, comprising:

a corrugated fibrous sheet material comprising at least a top layer and a bottom layer in contact at one or more regions to form at least two channels between the top layer and the bottom layer for air and fluid flow; and

a water insoluble thermoplastic compound [[has]] having a molecular weight of at least 2500 g/mole that impregnates the corrugated fibrous sheet material, wherein the water insoluble thermoplastic compound comprises:

about 0-15 weight percent Polyvinyl chloride,

about 2-25 weight percent Polyacrylonitrile,

about 0-65 weight percent Polymethacrylate,
about 0-15 weight percent Polyamideimide,
about 0-20 weight percent Polybutylacrylate,
about 5-60 weight percent Polystyrene; and
about 5-50 weight percent Polybutadiene to inhibit deposition of one or more dissolved or particulate contaminants.

45. (New) the composition of claim 44 wherein the composition comprises

0 weight percent Polyvinyl chloride,
about 2-25 weight percent Polyacrylonitrile,
0 weight percent Polymethacrylate,
0 weight percent Polyamideimide,
0 weight percent Polybutylacrylate,
about 5-60 weight percent Polystyrene; and
about 5-50 weight percent Polybutadiene.

46. (New) the composition of claim 44 wherein the composition comprises

0 weight percent Polyvinyl chloride,
about 2-25 weight percent Polyacrylonitrile,
about 5-65 weight percent Polymethacrylate,
0 weight percent Polyamideimide,

about 5-20 weight percent Polybutylacrylate,

about 5-60 weight percent Polystyrene; and

about 5-50 weight percent Polybutadiene.